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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/647,705	11/07/2000	Kenji Sakamoto	IKU0104PUSA	2404
7590	03/04/2004		EXAMINER CHUNDURU, SURYAPRABHA.	
James N Kallis Brooks & Kushman Twenty Second Floor 1000 Town Center Southfield, MI 48075			ART UNIT 1637	PAPER NUMBER

DATE MAILED: 03/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/647,705

Applicant(s)

SAKAMOTO, KENJI

Examiner

Suryaprabha Chundurur

Art Unit

1637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4 and 23-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4 and 23-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicants' response to the office action and amendment filed on August 20, 2003 has been entered.
2. Claims 1, 4, 23-25 are pending Claims 2-3, 18-22 are cancelled. Claims 5-17 are withdrawn.
3. This application is filed on November 7, 2000.

Response to Arguments

4. Applicant's response to the office action (Paper No.8) is fully considered and is found persuasive.
5. With regard to the rejection made in the previous office action under 35 USC 112, first paragraph (new matter rejection), Applicants' arguments and amendment are fully considered and the rejection is withdrawn herein in view of amendment.
6. With regard to the rejection made in the previous office action under 35 USC 103(a), Applicants amendment and arguments have been fully considered and rejection is moot in view of the amendment and new grounds of rejection.

New Grounds of Rejections necessitated by Amendment

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

A. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Ali et al. (J. Biol. Chem., Vol. 266, No. 30, pp 20110-20117, 1991).

Ali et al. teach a method of claim 1, of searching for a physiologically active peptides, wherein Ali et al. disclose that the method comprises

(a) comparing the cDNA sequences of receptor variants (prolactin (PRL) receptor variants) of receptors having one or more variant sizes (PRL long and short forms) (see page 20112, column 1, paragraph 1 and 2 of results section, Fig 1, page 20113, Figs. 2 and 4) the receptor being an identical ligand and being products of the same gene (prolactin gene) wherein a cell present in vivo (immune cell, interleukins) acts an antagonist to the ligand for the receptor (see page 20110, column 2, lines 20-26 of paragraph 1);

(b) identifying which cDNA sequence in the larger receptor is missing in the shorter receptor (see page 20112, column 1, lines 14-26, column 2, lines 1-11 of paragraph 1 of results section);

(c) determining the corresponding peptide sequence from cDNA sequence of missing region (see page 20113, Fig 2, and Fig 3, column 1, lines 14, column 2, lines 1-6, identifying the missing region by comparing the nucleotide sequence and corresponding amino acid sequence);

(d) synthesizing a peptide (isolation of peptide) having at least 70% homology (see page 20114, column 1, lines 3-4 of paragraph 1, page 20111, column 2, lines 1-13 of paragraph 4 under subheading nucleic acid hybridization screening and sequencing, page 20112, column 2, lines 1-19 of cloning and characterization of a cDNA for Nb2 PRL receptor, page 20113, lines 11-14, wherein Nb2 PRL-R cDNA indicates 70% homology retention);

(e) testing (characterization of activity) said peptide PRL-R (short form) for activity as an antagonist to the cell which expresses the receptor of the ligand (see transient transfection

results on page 20114, column 1, lines 3-15, column 2, lines 1-3, paragraph 1, page 20115, column 2, lines 2-12).

Thus the disclosure of Ali et al. meets the limitations in the instant claims.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 4,23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ali et al. (J. Biol. Chem., Vol. 266, No. 30, pp 20110-20117, 1991) in view of Kelly et al. (USPN. 6,083,753).

Ali et al. teach a method of claims 4, 23-25, of searching for a physiologically active peptides, wherein Ali et al. disclose that the method comprises

(a) comparing the cDNA sequences of receptor variants (prolactin (PRL) receptor variants) of receptors having one or more variant sizes (PRL long and short forms) (see page

20112, column 1, paragraph 1 and 2 of results section, Fig 1, page 20113, Figs. 2 and 4) the receptor being an identical ligand and being products of the same gene (prolactin gene) wherein a cell present in vivo (immune cell, interleukins) acts an antagonist to the ligand for the receptor (see page 20110, column 2, lines 20-26 of paragraph 1);

(b) identifying which cDNA sequence in the larger receptor is missing in the shorter receptor (see page 20112, column 1, lines 14-26, column 2, lines 1-11 of paragraph 1 of results section);

(c) determining the corresponding peptide sequence from cDNA sequence of missing region (see page 20113, Fig 2, and Fig 3, column 1, lines 14, column 2, lines 1-6, identifying the missing region by comparing the nucleotide sequence and corresponding amino acid sequence);

(d) synthesizing a peptide (isolation of peptide) having at least 70% homology (see page 20114, column 1, lines 3-4 of paragraph 1, page 20111, column 2, lines 1-13 of paragraph 4 under subheading nucleic acid hybridization screening and sequencing, page 20112, column 2, lines 1-19 of cloning and characterization of a cDNA for Nb2 PRL receptor, page 20113, lines 11-14, wherein Nb2 PRL-R cDNA indicates 70% homology retention);

(e) testing (characterization of activity) said peptide PRL-R (short form) for activity as an antagonist to the cell which expresses the receptor of the ligand (see transient transfection results on page 20114, column 1, lines 3-15, column 2, lines 1-3, paragraph 1, page 20115, column 2, lines 2-12). However Ali et al. did not teach chemical synthesis of said peptide and peptide fragments having 80%-90% homology.

Kelly et al teach identification of soluble human PRL-R (prolactin receptor) variants, wherein Kelly et al. disclose that said peptide receptor could be obtained from natural sources, or

could be chemically synthesized (see column 5, lines 34-40); Kelly et al. also disclose that different peptide variants of PRLR (muteins) comprise one or more amino acid substitutions or deletions with substantial or same biological activity and such variants can be produced by conventional mutagenesis techniques, which comprise peptides having 80%-90% homology to PRLR (see column 5, lines 8-19, 47-67, column 6, lines 1-7, column 8, lines 9-28).

Therefore, it would have been *prima facie* obvious to a person of ordinary skill in the art at the time the invention was made, to combine a method of searching for physiologically active peptides as taught by Ali et al. with the method of producing variant peptides as taught by Kelly et al. to achieve expected advantage of developing an improved method for searching and producing physiologically active peptides because Kelly et al. taught that biologically active peptide variants can be produced by substitution or deletion of one or more amino acids and the biological activity includes binding activity (enhanced or inhibitory activity) (see column 5, lines 50-61). An ordinary practitioner would have been motivated to combine the method of Ali et al. with the method of Kelly et al. to enhance the searching for wider range of physiologically active peptides by incorporating the variant peptides (80%/90% homology fragments), which would result in a sensitive method of searching physiologically active peptides including mutant forms.

Conclusion

No claims are allowable.


Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Suryaprabha Chunduru whose telephone number is 571-272-0783. The examiner can normally be reached on 8.30A.M. - 4.30P.M, Mon - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion reached on 571-272-0782. The fax phone numbers for the organization where this application or proceeding is assigned are 703872-9306 for regular communications and - for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0196.


Suryaprabha Chunduru
February 25, 2004


JEFFREY FREDMAN
JEFFREY FREDMAN
PRIMARY EXAMINER